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- G' cont.
80. The purified mutant RecA protein of claim 74, wherein said replacement amino acid residue is selected from the group of tryptophan, tyrosine, phenylalanine, and histidine.
81. A purified mutant RecA protein comprising SEQ ID NO: 3 and having an enhanced DNA binding activity compared to an unmutated RecA protein from the same source, wherein a naturally occurring amino acid residue located at residues 8 or 12 of SEQ ID NO: 3, is replaced with a tryptophan residue.
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### ***Remarks***

#### ***I. Support for Amendments***

Support for the foregoing amendments to the claims may be found throughout the specification and claims as originally filed. Specifically, support for the amendments can be found at pages 5-7; and page 15, line 20, through page 20, line 24. Accordingly, the present amendments do not add new matter, and their entry is respectfully requested.

#### ***II. Status of the Claims***

By the foregoing amendments, claims 1-54 have been cancelled and claims 55-81 have been added. Upon entry of the foregoing amendments, claims 55-81 are pending in the current application.

#### ***III. The Rejection of the Claims Under 35 U.S.C. § 101.***

In the Office Action dated September 10, 2002, the Examiner has rejected claims 28-54 under 35 U.S.C. § 101, for allegedly not being directed to statutory subject matter. In order to facilitate prosecution, claims 28-54 have been cancelled by the foregoing amendment; as such,

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the Examiner's rejection under 35 U.S.C. § 101 has been rendered moot. Reconsideration and withdrawal of this rejection are respectfully requested.

***IV. The Rejection of the Claims Under 35 U.S.C. § 112, First Paragraph.***

In the Office Action dated September 10, 2002, the Examiner has rejected claims 1-27 under 35 U.S.C. § 112, first paragraph for allegedly lacking an adequate written description. In order to facilitate prosecution, claims 1-27 have been cancelled by the foregoing amendment; as such, the Examiner's rejection under 35 U.S.C. § 112, first paragraph has been rendered moot. Reconsideration and withdrawal of this rejection are respectfully requested.

***V. The Rejection of the Claims Under 35 U.S.C. § 112, Second Paragraph.***

In the Office Action dated September 10, 2002, the Examiner has rejected claims 1-27 under 35 U.S.C. § 112, second paragraph for allegedly being indefinite. In order to facilitate prosecution, claims 1-27 have been cancelled by the foregoing amendment; as such, the Examiner's rejection under 35 U.S.C. § 112, second paragraph has been rendered moot. Reconsideration and withdrawal of this rejection are respectfully requested.

***VI. Conclusion***


All of the stated grounds of objection and rejection have been properly rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn.

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Applicant submits that the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

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55. A purified mutant RecA protein comprising SEQ ID NO: 3 and having an enhanced DNA binding activity compared to an unmutated RecA protein from the same source, wherein a naturally occurring amino acid residue, located within said sequence, is replaced with an amino acid residue which is volumetrically larger than the replaced amino acid residue.
56. The purified mutant RecA protein of claim 55, wherein said replacement occurs at residue 4 of SEQ ID NO: 3.
57. The purified mutant RecA protein of claim 55, wherein said replacement occurs at residue 13 of SEQ ID NO: 3.
58. The purified mutant RecA protein of claim 55, wherein said replacement occurs at residue 14 of SEQ ID NO: 3.
59. The purified mutant RecA protein of claim 55, wherein said replacement occurs at residue 15 of SEQ ID NO: 3.
60. The purified mutant RecA protein of claim 55, wherein said replacement occurs at residue 16 of SEQ ID NO: 3.
61. The purified mutant RecA protein of claim 55, wherein said replacement occurs at residue 20 of SEQ ID NO: 3.
62. The purified mutant RecA protein of claim 55, wherein said replacement amino acid residue is selected from the group of phenylalanine, lysine, tyrosine, arginine, and tryptophan.
63. The purified mutant RecA protein of claim 56, wherein said replacement amino acid residue is selected from the group of phenylalanine, lysine, tyrosine, arginine, and

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tryptophan.

64. The purified mutant RecA protein of claim 57, wherein said replacement amino acid residue is selected from the group of phenylalanine, lysine, tyrosine, arginine, and tryptophan.
65. The purified mutant RecA protein of claim 58, wherein said replacement amino acid residue is selected from the group of phenylalanine, lysine, tyrosine, arginine, and tryptophan.
66. The purified mutant RecA protein of claim 59, wherein said replacement amino acid residue is selected from the group of phenylalanine, lysine, tyrosine, arginine, and tryptophan.
67. The purified mutant RecA protein of claim 60, wherein said replacement amino acid residue is selected from the group of phenylalanine, lysine, tyrosine, arginine, and tryptophan.
68. The purified mutant RecA protein of claim 61, wherein said replacement amino acid residue is selected from the group of phenylalanine, lysine, tyrosine, arginine, and tryptophan.
69. A purified mutant RecA protein comprising SEQ ID NO: 3 and having an enhanced DNA binding activity compared to an unmutated RecA protein from the same source, wherein a naturally occurring amino acid residue, located within said sequence, but excluding residues 8 and 12 of SEQ ID NO: 3, is replaced with an aromatic amino acid residue.
70. The purified mutant RecA protein of claim 69, wherein said replacement occurs at residue 1 of SEQ ID NO: 3.
71. The purified mutant RecA protein of claim 69, wherein said replacement occurs at

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- residue 3 of SEQ ID NO: 3.
72. The purified mutant RecA protein of claim 69, wherein said replacement occurs at residue 5 of SEQ ID NO: 3.
73. The purified mutant RecA protein of claim 69, wherein said replacement occurs at residue 11 of SEQ ID NO: 3.
74. The purified mutant RecA protein of claim 69, wherein said replacement occurs at residue 17 of SEQ ID NO: 3.
75. The purified mutant RecA protein of claim 69, wherein said replacement amino acid residue is selected from the group of tryptophan, tyrosine, phenylalanine, and histidine.
76. The purified mutant RecA protein of claim 70, wherein said replacement amino acid residue is selected from the group of tryptophan, tyrosine, phenylalanine, and histidine.
77. The purified mutant RecA protein of claim 71, wherein said replacement amino acid residue is selected from the group of tryptophan, tyrosine, phenylalanine, and histidine.
78. The purified mutant RecA protein of claim 72, wherein said replacement amino acid residue is selected from the group of tryptophan, tyrosine, phenylalanine, and histidine.
79. The purified mutant RecA protein of claim 73, wherein said replacement amino acid residue is selected from the group of tryptophan, tyrosine, phenylalanine, and histidine.
80. The purified mutant RecA protein of claim 74, wherein said replacement amino acid residue is selected from the group of tryptophan, tyrosine, phenylalanine, and histidine.
81. A purified mutant RecA protein comprising SEQ ID NO: 3 and having an enhanced DNA binding activity compared to an unmutated RecA protein from the same source, wherein a naturally occurring amino acid residue located at residues 8 or 12 of SEQ ID NO: 3, is replaced with a tryptophan residue.